

## SUPPORT SYSTEM FOR SETTING PRICE OF TRANSACTION TARGET ARTICLE

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

**[0001]** The present invention relates generally to a support system for setting a price of a transaction target article, and more particularly to a transaction target article price setting support system applicable to a computer network based transaction system.

#### 2. Description of the Prior Art

**[0002]** With a spread of the Internet over the recent years, the commercial transactions are daily conducted via the Internet.

**[0003]** A conventional transaction information system for providing services for commercial transactions via the Internet, especially a used article transaction information system, includes a sales bulletin board (electronic bulletin board system) on which a sales price of a transaction target article is put up, an auction system in which a participant who sets the highest price for the auction article makes a successful bid of this article, and so on.

**[0004]** In the Internet-based commercial transactions described above, the users of the Internet are allowed to put up sales target articles on the sales bulletin board and participate in the commercial transactions as sales applicants such as entering the articles in the auction.

**[0005]** According to the used article transaction information system, the sales applicant puts up his or her own transaction

target article on the sales bulletin board or enters it in the auction. In this case, the sales applicant is able to set a price for the transaction target article (a minimum price in the auction) as the applicant desires. On the occasion of setting the price by the sales applicant, however, the conventional transaction information system provides no information for setting the price.

[0006] A great majority of the sales applicants are, however, amateurs with respect to how to sell the articles offered, and know nothing about the current market prices for sale of the transaction target article. The sales applicant therefore tends to set the price higher than the market price, with the result that a purchaser can not be found, or conversely, sets the price lower than the market price, with the result that the sales applicant becomes aware of having made an unprofitable transaction after the sale.

#### SUMMARY OF THE INVENTION

[0007] It is a primary object of the present invention to provide a support system for setting a price of a transaction target article, by which a sales applicant is able to set a proper price of the transaction target article.

[0008] To accomplish the above object, according to one aspect of the present invention, a support system for setting a price for a transaction target article in response to a request, comprises a storage unit storing identifying information for the transaction target article and quality information for

indicating the quality of the transaction target article, a receiving unit receiving the identifying information and the quality evaluating information for evaluating a quality of the transaction target article for which a price should be set by the requester, a reading unit reading the quality information coincident with the received identifying information and quality evaluating information, and a transmitting unit for transmitting the assessed quality information to the requester.

[0009] According to the present invention, the quality information is transmitted to the requester as support information for setting the price, and hence the price can be set with the quality information being used as a key factor.

[0010] The above support system according to the present invention may further comprise a transaction achievement information storage module for storing completed transaction (achievement) information containing transaction price information for transactions actually completed with respect to the transaction article, and a statistic value calculating unit for calculating a statistic value for the transaction price when at least one transaction achievement information coincident with the input identifying information and quality information is read-out from the transaction achievement information storage module, and the transmitting unit may transmit the calculated statistic value of the transaction price. The statistic value is, for example, an average value of the transaction price. Thus, the statistic value of the transaction price based on transaction achievements is transmitted as support information to the requester, and

therefore the requester is able to set the price more properly.

[0011] The support system according to the present invention may further comprise a necessary time related information storage module storing information on the necessary time for a transaction to actually be completed with respect to the transaction target article. The statistic value calculating unit may calculate a statistic value of the necessary time on the basis of a single item or plural items of transaction achievement information, and the transmitting unit may transmit, to the requester, the statistic value of the necessary time together with the statistic value of the transaction price. The statistic value is, for instance, an average value of the necessary time.

[0012] The support system for setting the price of the transaction target article according to the present invention is capable of supplying the requester with the quality information and the statistic value serving as key factors in setting the price, whereby the sales applicant is able to set the proper price of the transaction target article.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1A and 1B are high-level diagrams of a network architecture of a transaction system in one embodiment of the present invention;

FIG. 2 is an example of a hardware architecture for the server and client in one embodiment of the present invention;

FIG. 3 is a server process flowchart of the first embodiment

of the present invention (sheet 1);

FIG. 4 is a server process flowchart (sheet 2);

FIG. 5 is an example of an input display screen;

FIG. 6 is an example of a vehicle component database;

FIG. 7 is an example of a transaction history database;

FIG. 8 is an example of a price range table;

FIG. 9 is an example of a message displayed to a sales applicant corresponding to process step S13;

FIG. 10 is an example of a first collection table;

FIG. 11 is an example of a message displayed to a sales applicant corresponding to process steps S15 and S16;

FIG. 12 is an example of a second collection table;

FIG. 13 is an example of a message displayed to a sales applicant corresponding to process steps S18 and S19;

FIG. 14 is an example of an input screen in a second embodiment;

FIG. 15 is an example of an assessment item database;

FIG. 16 is an example of a second input screen;

FIG. 17 is an example of an assessment rank table;

FIG. 18 is an example of a message displayed to a sales applicant;

FIG. 19 is a server process flowchart showing an operation of the server in the second embodiment (sheet 1);

FIG. 20 is a server process flowchart showing the operation of the server in the second embodiment (sheet 2);

FIG. 21 is an example of an input screen in a third embodiment;

FIG. 22 is an example of a vehicle database; and

FIG. 23 is an example of a maintenance/repair history database.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] Embodiments of the present invention will hereinafter be discussed with reference to the accompanying drawings. The present invention is not, however, limited to the following embodiments.

##### [First Embodiment]

[0015] To begin with, a first embodiment of the present invention will be explained.

##### <Network Architecture>

[0016] FIG. 1A is a high-level diagram showing an example of a network system architecture for a transaction support system for setting a price of a transaction target article. FIG. 1B is a high-level interface diagram of a bulletin board in one embodiment of the present invention. Referring to FIGS. 1A and 1B, the transaction system is configured to operate on a server S as the transaction target article price setting support system, and the server S connects to a plurality of clients C, as request source parties, via an Internet N. The methods by which the clients C and the server S are connected to the Internet N, may include any one of the existing connection modes (such as a dial-up access, an ISDN connection and a leased circuit connection).

[0017] The server S functions as a World Wide Web (WWW) server and retains information on a Web site (homepage) that includes

a bulletin board 1 for browsing sales information of articles for sale. The server S provides the client C with access to the Web site, including the bulletin board 1, in response to a client C request. Each client C functions as a WWW browser, and a user at the client C is able to browse the bulletin board 1 provided by the server S. The bulletin board 1 lists the transaction information on the sale articles which are referred to as transaction target articles, and the information for each transaction target article is registered in an unillustrated database of the server S.

[0018] The user, as a sales applicant (seller) of each client C, is allowed to enter information on the bulletin board 1 for the article that the user, himself or herself, wishes to sell. In addition, when a transaction target article the user, himself or herself, wants to purchase is put on the bulletin board 1, the user is able to show an intention of purchasing the article via the bulletin board 1 to the sales applicant (seller) or otherwise (such as delivering an E-mail indicating the intention of buying it to the sales applicant).

[0019] A sales contract is then agreed upon between the seller (the sales applicant) and the purchase applicant, and the article is exchanged for a value equivalent. A provider (administrator) of the Web site including the bulletin board 1 may be categorized as a broker via the bulletin board 1, who collects a brokerage fee from the user inputting the sales information on the bulletin board 1.

[0020] Further, though not shown, the server S provides each of the clients C with a virtual auction site as part of the Web site. The user of each client C enters a transaction target article the user desires to sell, and enters a minimum price thereof. Then, a user of another client C enters a price the user is willing to pay for the transaction target article that is equal to or higher than the minimum price. Then, the user entering the highest price is able to purchase this transaction target article.

[0021] Thus, according to the Internet Nbased transaction system, the users of the clients C are capable of selling and buying transaction target articles via the bulletin board 1 and the virtual auction site as well.

[0022] In the first embodiment, the server S provides each of the clients C with access to the bulletin board 1 for inputting transaction information (sales information) on vehicle components (parts) as transaction targets. The user of the client C is either freely able or given a permission to input transaction information on the bulletin board 1 for a user's own vehicle component (irrespective of whether it is new or used) that the user desires to sell. The vehicle components may include a privately owned car, a truck, a motor bicycle, etc.

[0023] At this time, the user must indicate a desired sales price for the vehicle component on the bulletin board 1. Here, the server S provides the user of the client C with information for assisting the user in setting the desired sales price.



<Hardware Architectures of Client and Server>

[0024] Next, hardware architectures of each client C and the server S shown in FIG. 1 will be described. FIG. 2, for example, shows one embodiment of a hardware architecture for the client C and the server S. In this example, all of the clients C are assumed to have the same architecture, therefore, only one client C is illustrated in FIG. 2.

[0025] Referring to FIG. 2, the server S, for example, comprises a personal computer (PC), a workstation (WS), a host computer including the above components, or a dedicated server machine etc.

[0026] The server S includes a CPU 2 (corresponding to a reading unit, a statistic value calculating unit and an extracting unit), a main memory (MM) 3, an external storage device (secondary storage) 4 (corresponding to a storage unit), a communication interface (corresponding to a communication interface I/F: a transmitting unit and a receiving unit) 5 connected via a communication line to the Internet N, and interface circuits (I/F) 6, 7 and 8.

[0027] A display device 9 such as a cathode-ray tube, a liquid crystal display, a plasma display etc is connected to the I/F 6. A keyboard (KBD) 10 is connected to the I/F 7. A pointing device (PD) 11 such as a mouse, a trackball, a joystick, a flat point etc is connected to the I/F 8.

[0028] The external storage device 4 comprises, for example, a readable/writable recording medium such as a hard disk, a floppy disk, an optical disk, a magneto-optic disk (MO) etc. The

external storage device 4 is stored with a plurality of programs such as an operating system (OS), a program relative to a communication protocol and a program for the server S to function as a WWW server which are all executed by the CPU 2. The external storage device 4 also stores data (such as a text file, an image file and an HTML (HyperText Markup Language) file that create a homepage containing the bulletin board 1.

[0029] Moreover, the external storage device 4 stores the transaction information the user (sales applicant) of the client C input to the bulletin board 1 for the vehicle component the user desires to sell, as well as retaining information in the following databases (DBs) for supporting the user on setting the price of the vehicle component: a component DB 23, a transaction history DB 24, a price range table 25, an assessment item DB 26, an assessment rank table 27, a maintenance/repair history DB 28 and a vehicle DB 29. The external storage device 4 corresponds to a storage unit according to the present invention.

[0030] The CPU 2, when initialized by an operator of server S, copies necessary programs and data files to main memory 3 from the external storage device 4, then loads the necessary programs and data files into the MM 3 from the external storage device 4 and executes the loaded program. The CPU 2 thereby executes processes related to communications protocols for establishing communications with the client C, e.g., a variety of information processes, such as processes for providing the homepage containing the bulletin board 1 in response to a client C request,

and processes for providing support information for setting the price of a vehicle component.

[0031] Namely, the CPU 2 executes programs, whereby the server S functions as a transaction target article price setting support system including the storage unit, the receiving unit, the reading unit, the transmitting unit, the statistic value calculating unit and the extracting unit.

[0032] The main memory (MM) 3 is used as a working area for the CPU 2 and also used as a video random access memory (VRAM) for storing texts, images and videos displayed on a screen of the display device 9.

[0033] The client C comprises, for example, a personal computer (PC). All the computers used as client C are each capable of becoming at least an information processing terminal (DTE: Data Terminal Equipment) to the existing Internet N and include devices, such as the workstation (WS), mobile computers, personal digital assistants (PDA) like an electronic note etc, a car navigation terminal, a mobile telephone (cellular phone) and so on.

[0034] The client C includes a CPU 12, a main memory MM 13, an external storage device 14, and a communication interface (I/F) 15, interfaces (I/Fs) 16, 17 and 18 that are the same as I/Fs 9, 10 and 11 of the server S. A display device 19 is connected to the I/F 16. A KBD 20 is connected to the I/F 17. A PD 21 is connected to the I/F 18.

[0035] The external storage device 14 is stored with a variety of programs such as an OS, a program for the client C to function

as the WWW browser, and a program related to the communication protocols for establishing communications with server S.

[0036] The CPU 12, when utilized by the user (operator) of the client C, copies necessary items of data to MM 13 from the external storage device 14, then loads the necessary programs into the MM 13 from the external storage device 14 and executes the programs. The CPU 12 then executes a process for requesting the server S to provide the bulletin board 1, a process for transmitting to the server S the information that should be put up on the bulletin board 1, and a process for requesting the server S to provide information for supporting the user to set a price of the vehicle component.

#### <Processes of Server and Client>

[0037] Next, a discussion on the processes of the server S and of the client C will be made focusing on the process of the server S. The user of the client C, when browsing the bulletin board 1 retained in the server S, accesses the server S by an operation on the client C.

[0038] That is, the user initializes the WWW browser operating on the client C and, thereafter, specifies a URL (Uniform Resource Locator) linked to the homepage containing the bulletin board 1 of the server S. CPU 12 of the client C transmits a request to access a Web page corresponding to the URL to the Internet N from the communication interface I/F 15. This request is received by the server S via the Internet N.

[0039] Then, the CPU 2 of the server S starts the server processes shown in FIG. 3. FIGS. 3 and 4 are flowcharts depicting the

processes (the processes in the server S) executed by the CPU 2 of the server S. Referring to FIG. 3, at step S1 the CPU 2 of the server S is communicating with and accepting a variety of requests from the respective clients C (step S1).

[0040] Thereafter, the CPU 2, when accepting a client C request (step S1; Y), determines whether or not the accepted request is a client C request to access the bulletin board 1 (which is a request for providing the Web page of the bulletin board 1) (step S2).

[0041] If the CPU 2 determines that the client C request is a request to access the bulletin board 1 (step S2; Y), the CPU 2 provides the client C with the relevant Web page of the bulletin board 1 (step S3). To be more specific, the CPU 2 reads from the external storage device 4 the HTML file, the text file and the image file that configure the relevant Web page, and transmits these files to the requesting client C via the communication I/F 5.

Thereafter, the CPU 2 returns the processing to step S1 and reverts to accepting other requests.

[0042] The HTML file and other files transmitted from the server S are received by the communication interface 15 of the relevant client C via the Internet N. Then, the CPU 12 of the client C creates, on the MM 13, image data for the Web page based on the texts, images and descriptions in the received HTML file. The CPU 12 then displays an image corresponding to the Web page image data on the screen of the display device 19.

[0043] The Web page of the bulletin board 1 is thereby displayed on the display device 19 of the client C, allowing the user of

the client C to browse the sales information of the vehicle components for sale on the bulletin board 1.

[0044] Here, it is assumed that the user of the client C is trying to sell a vehicle component (used parts: secondhand parts) utilizing the bulletin board 1. In this case, the user of the client C must input a sales price for the vehicle component (transaction target article) and input the sales information (transaction information) thereof on the bulletin board 1.

[0045] At this time, the user, if unconfident of the sales price of the vehicle component and unsure to judge how long it will take to complete the transaction, inputs a request for support information for setting the sales price by operation of the KBD 20 and/or the PD 21. Then, the CPU 12 of the client C generates a message requesting transaction price setting support information, and delivers the message to the server S from the communication interface I/F 15 via the Internet N.

[0046] The CPU 2 of the server S, when receiving the transaction price setting support information request from the communication interface 5, replies with a "YES" response in step S4 if steps S1 and S2 have been completed, and advances the processing to step S6. Otherwise the CPU 2 replies with a "NO" response in step S4, and the CPU 2 executes other process corresponding to the request received in step S5, and loops the processing back to step S1.

[0047] When the processing proceeds to step S6, the CPU 2 transmits, to the client C, an input screen 31 for inputting the information needed for creating the support information, as shown in Fig.

5. When the client C receives the input screen 31, the CPU 12 displays the input screen 31 on the display device 19.

[0048] FIG. 5 is an example of the input screen 31 displayed on the display device 19. Referring to FIG. 5, the input screen 31 includes a component (parts) number entry box 32 for the vehicle component corresponding to the transaction target article, an image displaying area 33 for displaying the image or video of the vehicle component, a using period entry box 34 for the vehicle component, a desired sales price entry box 35, and a send button 36.

[0049] The component number entered in the entry box 32 involves the use of, for instance, a number allocated beforehand to the component by the provider (administrator) of the Web page of the bulletin board 1. The image displaying area 33 displays an image of the component scanned by, e.g., a camera type image scanner (not shown) connected via an unillustrated interface to the client C. In one configuration, input button 33a provided on the input screen 31 is used as a start button for a scan operation of the image scanner.

[0050] In this respect, when the user of the client C specifies a component image file (GIF (Graphics Interchange Format), Windows BMP, JPEG (Joint Photographic Experts Group), etc.) recorded on the external storage device 4, the component image may also be displayed in the display area 33. In this case, the component image file is created from a digital image photographed by, e.g., a digital camera or a digital video camera, and is recorded on the external storage device 4.

[0051] The time period (using period) which the user has been using the vehicle component concerned, is entered, for example in monthly units in the entry box 34. The using period unit may be arbitrarily set to a year, date, hour and minute as the unit for the using period. The sales price (desired sales price) of the vehicle component, which is desired by the user, is entered in the entry box 35.

[0052] The user, when the input screen 31 is displayed on the display device 19, inputs the component image to the client C by manipulating the KBD 20 and/or the PD 21, and enters the component number, the using period and the desired sales price in the entry boxes 32, 34 and 35. Thereafter, when depressing the send button 36, by manipulating the KBD 20 or the PD 21, the CPU 12 transmits, to the server S, the identifying information of the vehicle component (the image and the component number), the quality evaluating information (using period) and the desired sales price that have been inputted via the input screen 31.

[0053] The CPU 2 of the server S, after transmitting input screen 31 to the client C in step S6, waits for the completed input screen 31 to be transmitted from the client C (step S7). Then, the CPU 2, after receiving the relevant information from the client C (step S7; Y), advances the processing to step S8.

[0054] In step S8, the CPU 2 accesses the component database (DB) 23 stored in the external storage device 4 and reads, from the component DB 23, any records corresponding to the component number received from the client C into the main memory MM 3, and advances the processing to step S9.



[0055] FIG. 6 depicts an example of a data structure of the component DB 23 shown in FIG. 2. Referring to FIG. 6, the component DB 23 retains at least one record consisting of a component number field, a component code field, a standard price field, a field of using condition A, a field of using condition B and a field of using limit (using condition C).

[0056] The component number is a unique number allocated to the component by the administrator of the Web site, and is used as the identifying information (ID) of the component. The component code is a code assigned by the administrator based on the vehicle component function irrespective of a category of the vehicle, and is used as information for categorizing the component. The standard price is a standard retail price (a so-called fixed price) of the component. Note that the standard price may also be a price accounting for a market price such as an actual retail price on the market.

[0057] Further, Each of the using conditions A, B and C is defined as quality information indicating a quality corresponding to the using period of the vehicle component, and is set per component. The using limit indicates a using period that has expired with the value of the component becoming nothing (zero). When the using period exceeds the using limit component is dealt with as valueless. A record in the component DB 23 is created each time a transaction target article is input and registered on the bulletin board 1 as a for sale item.

[0058] In step S9, the CPU 2 of the server S compares the using period received from the client C with the using limit read from

the MM 3, and determines whether the using period exceeds the using limit. If the using period exceeds the using limit (step S9; Y), the CPU 2 advances the processing to step S10 and executes an error process. Namely, the CPU 2 creates an error message saying that the component the user desires to sell has exceeded its using period limit and is valueless (impossible of being sold), and delivers this message to the client C. The error message is displayed on the display device 19 of the client C. Thereafter, the CPU 2 finishes the process in step S10 and returns the processing to step S1.

[0059] By contrast, if the using period does not exceed the using limit (step S9; N), the CPU 2 obtains a using condition of the component (step S11). That is, the CPU 2 compares the using period with each of the using period conditions A, B and C in the record, and specifies the using condition coincident with the input using period.

[0060] Next, the CPU 2 reads into the MM 3, all of the records with the corresponding component number received from the client and with the corresponding using condition obtained in step S11 out of the transaction history database (DB) 24 stored in the external storage device 4 (step S12; see FIG. 4), and advances the processing to step S13.

[0061] FIG. 7 is an example of a data structure of the transaction history DB 24 shown in FIG. 2. Referring to FIG. 7, the transaction history DB 24 is a database stored with a history of the transactions initiated via the bulletin board 1. The transaction history DB 24 consists of a single record or a

plurality of records each composed of fields such as an advertisement number, a transaction number, a transaction date, a component number, a component code, a using condition, a using period, an advertisement starting date, a transaction price and an assessment rank. Each of the records stored in the transaction history DB 24 corresponds to transaction achievement information according to the present invention.

[0062] The advertisement number is a unique number used as information for specifying the sales information (transaction information) input and displayed (advertised) on the bulletin board 1. The transaction number is a unique number for specifying the transactions initiated via the bulletin board 1. The transaction date is a year, month and date when the transactions were initiated, and the administrator of the bulletin board 1 sets a date when the sales contract was adequately completed or a date when the vehicle component was exchanged for a value equivalent.

[0063] The advertisement starting date is a date when the sales information starts being available (advertised) on the bulletin board 1. The transaction price is the amount of money set as the value equivalent to the component in the sales contract for the vehicle component. The assessment rank indicates a quality based on a predetermined assessment standard set by the administrator of the bulletin board 1. Note that each time a transaction is initiated via the bulletin board 1, a new record of the sales transaction initiated is registered in the transaction history DB 24 as one of the other processes in step

S5.

[0064] In step S13, the CPU 2 obtains an average number of bid tender days during which bids for the component in a price range (price zone) inclusive of the desired sales price have been received from the clients C, using single record or a plurality of records (refer as "first extraction record(s)") extracted from the transaction history DB 24 in step S12. The average number of bid tender days is a number of days required for initiating the transaction of the transaction target article since the transaction information of the transaction target article was advertised on the bulletin board 1, and indicates the period of time required for initiating the transaction. The transaction agreement time may be selected from, for example, the time when the purchaser conveyed an intention to purchase to the seller, the time when the intention of the purchaser was conveyed to the administrator of the bulletin board 1, on the time when the component was exchanged with the value equivalent.

[0065] To describe step S13 in depth, the CPU 2 accesses the price range table 25 stored in the external storage device 4, and determines which price range the desired sales price falls within in the price range table 25.

[0066] FIG. 8 is an example of the price range table 25 shown in FIG. 2. As shown in FIG. 8, a price range table 25 is provided for every component number. The price range table 25 may, however, only be provided for every component code.

[0067] Further, the price range table 25 in this example provides five price ranges such as 0 ~ 5000 yen, 5001 ~ 8000 yen, 8001

~ 10000 yen, 10001 ~ 15000 yen and 15001 ~ 99999 yen. The CPU 2 compares the desired sales price with each of the price ranges, thereby determining the price range inclusive of the desired sales price.

[0068] Note that the number of the price ranges and a size of each price range may be properly set. Further, as a substitute for using the price range table 25, a minimum price and a maximum price that define a price range may also be calculated to set different price ranges, such as setting a range for every 2000 yen or 3000 yen and so on.

[0069] After determining the price range embracing the desired sales price, the CPU 2 extracts records in which the transaction prices falls within the price range as a second extraction record from a first extraction record. Subsequently, the CPU 2 subtracts the advertisement starting date from the transaction date with respect to each of the second extraction records, and divide a sum of the subtracted results by the number of the second extraction records, thereby obtaining an average number of bid tender days.

[0070] Thereafter, the CPU 2 creates a message containing the using condition obtained in step S11 and the average number of bid tender days obtained in step S13, and delivers the created message to the relevant client C (step S14). Thereafter, the CPU 2 advances the processing to step S15.

[0071] When receiving the message delivered from the server S, the client C displays the received message on the display device 19. FIG. 9 is an example of a message 37 displayed to the sales

applicant that corresponds to the process in step S13. Thus, the sales applicant (the user of the client C) is provided with the using condition as the quality information of the transaction target article and the average number of bid tender days in the price range inclusive of the desired sales price as pieces of support information for setting the sales price.

[0072] In step S15, the CPU 2 obtains the average number of bid tender days for every price range and subsequently obtains an average transaction price for every price range (step S16). The processes in steps S15 and S16 will hereinafter be explained in greater detail.

[0073] The CPU 2 creates a first collection table based on the price range table 25 referred to in step S13 in the main memory MM 3. FIG. 10 is an example of a first collection table 38. The first collection table 38 is a table for collecting the number of records, the number of days and the transaction price, corresponding to each of the price ranges retained in the price range table 25. When the first collection table 38 is created, the number of records, the number of days and the transaction price, which correspond to each of the price ranges, are each set to zero as an initial value (see FIG. 10).

[0074] The CPU 2, when creating the first collection table 38, with respect to a certain first extraction record, refers to the price range inclusive of the transaction price thereof, and increments [the number of records] in the first collection table 38 by "1" ("1" is added to the number of records), corresponding to the relevant price range. Subsequently, the CPU 2 subtracts

the advertisement starting date from the transaction date in the first extraction record, and adds a value of this subtracted result to [the number of days] corresponding to the relevant price range. Further, the CPU 2 adds the transaction price in the first extraction record to [the price] corresponding to the relevant price range. The CPU 2 executes the processes given above with respect to all the first extraction records.

[0075] Thereafter, the CPU 2, when finishing the above processes for all the first extraction records, divides a value of each [number of days] and a value of each [price] retained in the first collection table 38 by [the number of records] corresponding thereto. Thus, the CPU 2 obtains an average value (an average number of bid tender days) of [the number of days], and also an average value (an average transaction price) of the [price].

[0076] Thereafter, the CPU 2 creates a message containing the average number of bid tender days and the average transaction price that have thus been obtained, and transmits the message to the relevant client C (step S17). After this process, the CPU 2 advances the processing to step S18.

[0077] After receiving the message delivered from the server S, the client C displays this message on the display device 19. FIG. 11 is an example of a message 39 to the sales applicant, corresponding to the processes in steps S15 and S16. The user of the client C is thus provided with the using condition corresponding to the quality information on the transaction target article (vehicle component) as support information for

setting the sales price. The user of the client C is also provided with the average number of bid tender days and the average transaction price for every price range.

[0078] In step S18, the CPU 2 obtains the average number of bid tender days at an interval of a predetermined advertising period. Subsequently, the CPU 2 obtains the average transaction price days at predetermined advertising period (S19) interval. The following is the details of steps S18 and S19.

[0079] The CPU 2 creates a second collection table 40 based on a predetermined advertising period (e.g., 10 days, 20 days and 30 days) in the MM 3. FIG. 12 is an example of a second collection table 40. The second collection table 40 collects and retains the number of records, the number of days and the transaction prices corresponding to each for the predetermined advertising periods. When the second collection table 40 is created, the number of records, the number of days and the transaction prices corresponding to each of the predetermined advertising periods, are each set to zero as an initial value (see FIG. 12).

[0080] When creating the second collection table 40, with respect to a certain first extraction record, the CPU 2 increments [the number of records] in the second collection table 40 by "1" ("1" is added to the number of records), corresponding to the advertising period containing the number of days obtained by subtracting the advertisement starting date from the transaction date. Subsequently, the CPU 2 subtracts the advertisement starting date from the transaction date in the first extraction record, and adds a value of this subtracted result to [the number



of days] corresponding to the relevant advertising period. Further, the CPU 2 adds the transaction price in the first extraction record to [the price] corresponding to the relevant advertising period. The CPU 2 executes the processes given above with respect to all the first extraction records.

[0081] Thereafter, the CPU 2, when finishing the above processes for all the first extraction records, divides a value of each [number of days] and a value of each [price] retained in the second collection table 40 by [the number of records] corresponding thereto. Thus, the CPU 2 obtains an average value (an average number of bid tender days) of [the number of days], and also an average value (an average transaction price) of the [price].

[0082] Thereafter, the CPU 2 creates a message containing the average number of bid tender days and the average transaction price that have thus been obtained, and transmits this message to the relevant client C (step S20). After this process, the CPU 2 loops the processing back to step S1.

[0083] When receiving the message delivered from the server S, the client C displays the received message on the display device 19. FIG. 13 is an example of a message 41 displayed to the sales applicant, corresponding to the processes in steps S18 and S19. The component sales applicant (the user of the client C) is thus provided with the using condition corresponding to the quality information on the transaction target article (vehicle component) as support information for setting the sales price. The user of the client C is also provided with the average number

of bid tender days and the average transaction price at the predetermined advertising period interval.

[0084] Note that the first embodiment has given the example in which the predetermined advertising period is set to less than 10 days, 11 ~ 20 days, 21 ~ 30 days, and 31 days or longer, however, a length of the advertising period may adequately set to any desired value.

<Operation in First Embodiment>

[0085] According to the first embodiment, if the user of the client C wishes to sell a vehicle component via the bulletin board 1, the client C requests support information for setting the price of the vehicle component from the server S. The client C is given the input screen 31 to input the information (the information for identifying the transaction target, and the quality evaluation information) needed for providing the support information.

[0086] Then, the client C supplies the server S with the identifying information (the image and the component number) of the transaction target article (vehicle component), the quality evaluation information (the using period) for this component and the desired sales price via the input screen 31. Then, the server S evaluates the quality (the using condition) of the component on the basis of the identifying information of the component and the quality evaluation information (the using period) (step S11).

[0087] Subsequently, the server S obtains the average number of bid tender days in the price range embracing the desired sales

price, using the respective items of information received from the client C and the transaction achievement information (the records in the transaction history DB 24) of the sales conducted via the bulletinboard 1 (step S13). Then, the server S supplies the client C with the using condition and the average number of bid tender days as support information (step S14).

[0088] The support information is displayed on the display device 19 of the client C. The user (the sales applicant) of the client C is provided the quality of the sales target component and the average number of bid tender days (how long it took to find a purchaser for the relevant component at the desired sales price).

[0089] Moreover, the server S obtains the average number of bid tender days and the average transaction price for every price range with respect to the transaction target article (steps S15 and S16), and supplies this data to the client C (step S17). The sales applicant is thereby able to determine which price range is proper for the transaction target article and how soon a purchaser will be located in that price range.

[0090] Further, the server S obtains the average number of bid tender days and the average transaction price at predetermined advertising period intervals with respect to the transaction target article (steps S18 and S19), and supplies this data to the client C (step S20). With this operation, the sales applicant can determine the relationship between the length of the advertising period and the transaction price for the transaction target article.

[0091] As discussed above, the sales applicant can receive the quality information for the transaction target article by receiving the using condition information as support information, and can utilize these pieces of information as key factors in setting the price of the vehicle component concerned. Further, the sales applicant receives information on the transaction achievements (the average number of bid tender days and the average transaction price as statistic values) for the component the user wants to sell, by the component number and using condition (the identifying information and the quality information are the same) as support information. The sales applicant is thereby capable of predicting how soon the purchaser can be located by knowing the affect of the price set for the transaction target article.

[0092] Accordingly, the sales applicant is capable of setting the desired sale price of the sales target component to a price that leads to a desirable result (such as being sold higher and sooner) to the sales applicant. Namely, the sales applicant is able to properly set the price. The administrator of the bulletin board 1 is capable of increasing the number of users of the bulletin board 1 and of improving the profits, in the case of collecting the fee for using the bulletin board 1 from the user thereof.

[0093] Incidentally, in the first embodiment, the processing results in step S13, steps S15 and S16 and steps S18 and S19, are individually transmitted to the client C. Alternately, the server S may transmit one message to the client C which includes messages 37, 39 and 41 when finishing the process in step S19.

[0094] Further, in the first embodiment, the process in step S13, the processes in steps S15, S16 and the processes in steps S18, S19 are described being executed in series after receiving a request for one item of support information. The client C may, however, request only one of the processes described above.

[0095] Moreover, the process in step S13, the processes in steps S15, S16 and the processes in steps S18, S19 may take any sequence. Further, the process in step S15 and the process in step S16 may be reversed in order, and the process in step S18 and the process in step S19 may also be reversed in order.

[0096] Furthermore, the first embodiment describes the server S as providing the support information to the client C. However, the external storage device 14 of the client C can store the same information as is stored in the external storage device 4, and the support request input via the KBD 20 or the PD 21 may be answered by the CPU 12 of the client C, which may execute the processes shown in FIGS. 3 and 4, and the messages 37, 39, 41 may be displayed on the display device 19. Namely, the present invention may be contained with a stand-alone computer. This is the same with second and third embodiments.

[Second Embodiment]

[0097] Next, a second embodiment of the present invention will be discussed. The second embodiment contains aspects and features similar to the first embodiment. Hence, the discussion will concentrate on differences therebetween.

[0098] The processes of the server S and the client C in the second embodiment are the same as those in the first embodiment, as

far as the steps S1 ~ S5 shown in FIG. 3 are concerned. In the second embodiment, however, an input screen transmitted to the client C from the CPU in step S6 is different from the input screen in the first embodiment.

[0099] FIG. 19 is a process flowchart for the server S (the processes of the CPU 2) in the second embodiment. In the second embodiment, the CPU 2 transmits input screen 31A in place of the input screen 31 to the client C in step S106 corresponding to step S6, as shown in FIG. 21.

[0100] FIG. 14 is an example of the input screen 31A in the second embodiment. As shown in FIG. 14, the input screen 31A is different from the input screen (see FIG. 5) in that input screen 31A does not include the using period entry box 34 and input screen 31A substitutes a [Next] button 43 for the transmission button 36.

[0101] When the client C receives and displays input screen 31A on the display device 19, the user of the client C inputs an image, a component number and a desired price by the same method as used in the first embodiment. Then, the [Next] button 43 is depressed by manipulating the KBD 20 or the PD 21.

[0102] Then, the CPU 12 of the client C transmits, to the server S, a request for a second input screen 44 (see FIG. 16) which contain at least a component number of the transaction target article. Upon receiving this request (step S107; Y), the CPU 2 of the server S accesses the component database DB 23 and reads from the component DB 23 a component code corresponding to the component number received from the client C into the MM 3 (step

S108).

[0103] Next, the CPU 2 refers to the assessment item database DB 26 stored in the external storage device 4 and reads assessment check items into the MM 3 corresponding to the component code read into the MM 3, thereby creating display data (based on an HTML format etc) on the second input screen 33 (step S109).

[0104] FIG. 15 is an example of a data structure of the assessment item DB 26 shown in FIG. 2. The assessment item DB 26 is provided for, e.g., every component code. The assessment item DB 26 retains information on the assessment items of a component and scores (points) corresponding to answers to questions about the assessment items in a structure suited to a layout on the second input screen 44. In the example shown in FIG. 15, the assessment items in the assessment item DB 26 are a using period, cleaning of ○○ portion, polishing of ◇◇ portion, rust, scraped flaw, scratches and a recess.

[0105] When creating the display data on the second input screen 44, the CPU 2 transmits the display data to the client C (step S110). Upon receiving the display data, the client C displays the second input screen 44 based on the display data on the display device 19.

[0106] FIG. 16 is an example of the second input screen 44. Referring to FIG. 16, the second input screen 44 includes the using period entry box 34, an answer box 44a to the questions about the assessment items retained in the assessment item DB 26, and the send button 36. Plural concepts of answers to the questions about the assessment items are displayed in the answer

box 44a, and a check box containing check circles for indicating the respective answers is provided.

[0107] The user of the client C enters the using period in the entry box 34 and checks the check circle corresponding to the answer corresponding to the question about each assessment item, thereby answering the question. Then, when finishing answering all the questions, the user depresses the send button 36.

[0108] Then, the CPU 12 of the client C transmits, to the server S, the image, the component number and the desired sales price that have been input on input screen 31A, and the answers to the questions about the using period and other assessment items that have been input on second input screen 44.

[0109] After receiving the respective pieces of information via the communication interface I/F 5 (step S111), as in the first embodiment, the CPU 12 of the server S determines whether or not the using period exceeds the using limit (step S112). If over the using limit (step S112; Y), the error process (step S113; the same as step S10) previously described is executed.

[0110] If the using period does not exceed the using limit (which does not correspond to the using condition C) (step S112; N), the CPU 2 refers again to the assessment item DB 26 used for creating the display data on the second input screen 44, and calculates assessment scores (points) based on the answers to the questions, which have been received from the client C (step S114). For example, the CPU 2 sets a base of the assessment score to 100, and adds or subtracts a score corresponding to the answer to the question to or from the base score 100.



[0111] Next, the CPU 2 obtains an assessment rank using the calculated result of the assessment score (step S115). That is, the CPU 2 refers to the assessment rank table 27 stored in the external storage device 4 and reads therefrom the assessment rank corresponding to the calculated result into the MM 3.

[0112] FIG. 17 is an example of an assessment rank table 27 shown in FIG. 2. As shown in FIG. 17, the assessment rank table 27 is stored with ranges of the assessment scores (points) and the assessment ranks that correspond to each range. Note that the assessment rank is set in five categories A2, A1, B2, B1 and C in this example, however, the (number of) categories of the assessment ranks may be set as needed.

[0113] Next, the CPU 2 obtains the average number of bid tender days and the average transaction price using the assessment rank acquired (step S116). To be specific, the CPU 2 extracts (reads into the MM3) all the records having the component number received from the client C and the assessment rank acquired as third extraction records.

[0114] Subsequently, from the extracted third extraction records, the CPU 2 obtains the average number of bid tender days and the average transaction price per price range by using the price range table 25 and the first collection table 38 and the same method as steps S15 and S16 in the first embodiment.

[0115] Thereafter, the CPU 2 creates a message containing the acquired assessment rank, the assessment score, the average number of bid tender days and the average transaction price per price range, and delivers this message to the relevant client

C (step S117).

[0116] The client C thereby receives and displays this message on the display device 19. FIG. 18 is an example of a message 46 displayed on the display device 19. As shown in FIG. 18, the assessment score and the assessment rank of the transaction target article are displayed to the user (sales applicant) of the client C. Further, the average number of bid tender days (the average advertising period) and the average transaction prices for every price range with respect to the transaction target article having the above assessment rank and the same component number, are also displayed to the user.

[0117] Note that the average number of bid tender days in the price range inclusive of the desired sales price may be obtained based on the assessment rank by substantially the same method as step S13 in the first embodiment, then transmitted to the client C and displayed on the display device 19 (the average number of bid tender days may be provided as support information to the sales applicant) in the second embodiment.

[0118] Further, the average number of bid tender days and the average transaction price at the predetermined advertising period interval may be obtained based on the assessment rank using the second collection table 40 by substantially the same method as steps S18 and S19 in the first embodiment, and then transmitted to the client C and displayed on the display device 19 in the second embodiment.

[0119] In accordance with the second embodiment also, the sales applicant is able to set a proper price for the transaction target

article with reference to the support information (the assessment rank, the average number of bid tender days and the average transaction price). Further, in the second embodiment, the quality of the component is evaluated based on the plurality of assessment items (assessment standards) including the using period. Thus, in the second embodiment, the quality of the transaction target article is examined in greater details than in the first embodiment, and hence a gap between the condition of the transaction target article and the transaction price can be made smaller than in the first embodiment.

[0120] Note that while the assessment rank is defined as one field of the record in the transaction history database DB 24, in the second embodiment of the present invention, the assessment item database DB 26 and the assessment rank table 27 use database structures that are not used in the first embodiment. Therefore, in the first embodiment, the assessment ranks in the transaction history DB 24, the assessment item DB 26 and the assessment rank table 27 are unnecessary.

[0121] Furthermore, according to the second embodiment, the assessments about the rust, scraped flaw, scratches and recesses are made based on the answers of the sales applicant.

Alternatively, these assessment items are removed from the assessment item DB 26 and the second input screen 44, and the assessment score (points) may be calculated using the vehicle component image received via the second input screen 44. In this embodiment, the component image is displayed on the display device 19, and the operator of the server S may input a score

corresponding to a result of the assessment or the CPU 2 may execute a predetermined process of the image in the server S, whereby the assessment score can be automatically calculated.

[Third Embodiment]

[0122] Next, a third embodiment of the present invention will be discussed. The third embodiment contains aspects and features similar to the first embodiment, and the discussion will therefore be focused on the differences from the first embodiment.

[0123] FIG. 20 is a flowchart showing processes (of the CPU 2) of the server S in the third embodiment. The processes of the server S and the client C in the third embodiment are the same as those in the first embodiment as far as steps S1 ~ S5 shown in FIG. 3 are concerned. In the third embodiment, however, an input screen transmitted to the client C in step S6 is different from the input screen in the first embodiment.

[0124] In accordance with the third embodiment, in the client C, a type and a frame number of the vehicle from which the transaction target article is taken, are input on the input screen. In the third embodiment, the data on input screen 31B is transmitted to the client C in step S206, corresponding to step S6.

[0125] FIG. 21 is an example of the input screen 31B in the third embodiment. As shown in FIG. 21, the input screen 31B is different from the input screen 31 (see FIG. 5) in that vehicle type entry box 48 and a frame number input box 49 are added to the configuration of the input screen 31.

[0126] When the client C receives and displays input screen 31B on the display device 19, the user of the client C inputs an image, a component number and a desired price by the same method as the first embodiment. At this time, the user is also able to selectively input data for either the using period, the vehicle type and the frame number .

[0127] Namely, the input screen 31B is configured so that if either the using period or the vehicle type and the frame number are input, the other can not be input. If neither the using period nor the vehicle type and the frame number are input, input screen 31b is configured such that the data can not be transmitted to the server S even when depressing the send button 36.

[0128] When finishing the data entry process on the input screen 31B, the user depresses the send button 36 by manipulating the KBD 20 or the PD 21. The CPU 12 of the client C transmits the image, the component number, the desired price and the using period (or the vehicle type and the frame number) to the server S.

[0129] When receiving the above information from the client C (step S207), the CPU 2 of the server S determines whether or not the information received contains the vehicle type and the frame number of the vehicle (step S208). At this time, if the received data contains the vehicle type and the frame number (step S208; YES) the CPU 2 advances the processing to S209. Conversely, if the vehicle type and the frame number are not contained (step S208; NO) in the received data, the CPU 2 determines that the information received from the client C does not contain the

vehicle type and the frame number but the using period, and diverts the processing to step S8 in FIG. 3. After diverting to step S8, the subsequent processing is the same as discussed under the first embodiment.

[0130] When the processing proceeds to step S209, the CPU 2 searches the vehicle database DB 29 stored in the external storage device 4 using the vehicle type and the frame number, and thus determines whether or not a record containing the vehicle type and the frame number is stored therein.

[0131] FIG. 22 is an example of the vehicle DB 29 shown in FIG. 2. As shown in FIG. 22, the vehicle DB 29 retains records each consisting of fields such as a vehicle type, a frame number and an operation starting date.

[0132] If a record containing the type and the frame number does not exist in the vehicle DB 29 (step S209; NO), the CPU 2 determines that the information received from the client C contains the using period, and diverts the processing to S8 in FIG. 3. After diverting to S8, the subsequent processes are the same as discussed under the first embodiment. If a record containing the vehicle type and the frame number exists in the vehicle DB 29 (step S209; YES), the CPU 2 reads the relevant record from the vehicle DB 29 into the MM 3.

[0133] Next, the CPU 2 obtains a component code corresponding to the component number received from the client C (step S211). This process is executed in such a way that the CPU 2 searches an unillustrated component number/component code conversion table stored in the external storage device 4 by use of the

component number. Note that the CPU 2 may also obtain the component code by searching the component database DB 23.

[0134] Next, the CPU 2 determines whether or not a record containing the component code, the vehicle type and the frame number is stored in the maintenance/repair history database DB 28 stored in the external storage device 4 (step S212).

[0135] FIG. 23 is an example of the maintenance/repair history DB 28 shown in FIG. 2. The maintenance/repair history DB 28 retains a single or plurality of records each consisting of fields such as a vehicle type, a frame number, a work date, a component code and a work classification. The work classification field takes a value of any one of [exchange], [cleaning], [plate working] and [coating] in accordance with the type of the maintenance or the repair (restoration).

[0136] If the record containing the component code, the vehicle type and the frame number is not stored in the maintenance/repair history DB 28 (step S212; NO), The CPU 2 advances the processing to step S217. If a record is stored therein (step S212; YES), the CPU 2 advances the processing to step S213, and reads that record into the main memory MM 3.

[0137] Subsequently, the CPU 2 determines whether or not the work classification in the record read into the MM 3 is [exchange] (step S214). If the work classification is [exchange], the processing proceeds to step S216. If the work classification is not [exchange], the processing goes forward to step S215.

[0138] In step S215, the CPU 2 determines whether or not the work classification in the record in the maintenance/repair history

DB 28 that has been read into the MM3 is [cleaning]. If the work classification is [cleaning], the processing proceeds to step S216. If the work classification is not [cleaning], the processing diverts to step S217.

[0139] In step S216, the CPU 2 obtains, as the using period, a period extending from [work date] in the record in the maintenance/repair history DB 28 that has been read into the MM 3 up to the present time. Thereafter, the CPU 2 loops the processing back to step S8 in FIG. 3, and executes the same processes as those in the first embodiment.

[0140] In step S217, the CPU 2 obtains, as the using period, a period extending from [operation starting date] in the record in the vehicle DB 29 that has been read into the MM 3 in step S210 up to the present time, and loops the processing back to step S8. Thereafter, the CPU 2 executes the same processes as those in the first embodiment.

[0141] According to the third embodiment, the transaction target articles of the sales applicant is removed from the vehicle, and the same component is fitted to the vehicle in a maintenance and repair shop related to the administrator of the bulletin board 1, in which case the type and the frame number of the vehicle are entered on the input screen 31 b instead of the using period, and the using period is automatically set based on these pieces of data. Accordingly, under above conditions, even if the sales applicant forgets the using period of the component, the using condition of the component can be determined based on the precise using period.



[0142] Note that the maintenance/repair history DB 28, the vehicle DB 29 shown in FIG. 2, the component number/component code conversion table (not shown) and the input screen 31B, are used in only the third embodiment and may not be therefore provided if the transaction system in the first embodiment is carried out. Further, the first through third embodiments may be properly combined within the scope of the present invention without departing from the purpose of the present invention.